

WHAT IS CLAIMED IS:

1. In a process for burning dilute gaseous waste materials in a flare, wherein said dilute gaseous waste materials require enrichment with a fuel source in order to convert at least 80% of the dilute gaseous waste material to carbon dioxide and water vapor upon combustion, the improvement comprises the steps of:

- a) providing a dilute gaseous waste material stream,
- b) providing a hydrogen-containing gas stream;
- c) forming a flare gas mixture by blending said hydrogen-containing gas stream with said dilute gaseous waste material stream in such relative proportions that the concentration of hydrogen in the flare gas mixture is sufficient to convert at least 80% of the dilute gaseous waste material to carbon dioxide and water vapor upon combustion;
- d) feeding the flare gas mixture to a flare; and
- e) combusting the flare gas mixture.

2. A process according to claim 1, wherein the concentration of hydrogen in said flare gas mixture is at least 3 mole percent.

3. A process according to claim 1, wherein said hydrogen-containing gas stream consists essentially of hydrogen.

4. A process according to claim 1, wherein said hydrogen-containing gas stream comprises a synthesis gas containing carbon monoxide and hydrogen.

5. A process according to claim 1, wherein said hydrogen-containing gas stream comprises ammonia dissociation products.

6. An improved process for burning gaseous waste materials in a flare, said process comprising the steps of providing a fuel stream and a gaseous waste stream, mixing said streams to form a flare gas mixture, and feeding the flare gas mixture to a flare, wherein the improvement comprises providing as said fuel stream a gas stream containing a sufficient concentration of hydrogen to convert

at least 80% of the gaseous waste material to carbon dioxide and water vapor upon combustion.

7. A process according to claim 6, wherein the concentration of hydrogen in said flare gas mixture is at least 3 mole percent. .

8. A process according to claim 6, wherein said gas stream consists essentially of hydrogen.

9. A process according to claim 6, wherein said gas stream comprises a synthesis gas containing carbon monoxide and hydrogen.

10. A process according to claim 6, wherein said gas stream comprises ammonia dissociation products.

11. An improved process of the type including a reactor process and a flare process, said flare process including the steps of mixing a fuel gas with a waste gas to form a flare gas and burning the flare gas, wherein said reactor process includes the step of employing said fuel gas in a chemical reaction, and wherein the improvement comprises reducing the quantity of fuel gas mixed with the waste gas by a first amount, increasing the quantity of fuel gas employed in the chemical reaction by a second amount less than or equal to said first amount, and mixing with said waste gas a substitute fuel gas containing a sufficient quantity of hydrogen to sustain combustion.

12. A process according to claim 11 wherein said first amount is 100% of the fuel gas.

13. A process according to claim 11 wherein said sufficient quantity of hydrogen is at least 3 mole percent.

14. A process according to claim 11 wherein said substitute fuel gas is produced as a byproduct of said reactor process.